



# FINAL REPORT

Efficacy Study of the UVC LED CrazyCap Pro

ORDER Number  
152109621

PREPARED FOR:

UBO-Technology, LLC  
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## Certificate of Analysis

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**Client:** UBO-Technology, LLC

**Contact:** Rakesh Guduru

**Project:** Efficacy study of UVC LED CrazyCap Pro

**Product:** CrazyCap Pro



**EMSL NO:** 152109621

**Sample received:** 12/13/2021

**Report date:** 1/18/2022

**Challenge Bacteria:** *Escherichia coli* (*E. coli*) - ATCC 25922



**Experimental Summary:**

The testing procedure was designed after discussions between EMSL Analytical, the testing company, and the client, UBO-Technology, LLC. The testing was conducted on the UVC LED CrazyCap Pro for its ability to kill bacteria in the contained water. The testing was conducted in our Houston Microbiology Laboratory.

**Procedure:**

**Bacterial Inoculum Preparation**

An *E. coli* stock culture was plated onto Tryptic Soy Agar with 5% sheep Blood (TSAB) and incubated at 35°C for 22 hours. Well-isolated colonies were then harvested, suspended in sterilized de-ionized water, and vortexed for 1 minute to ensure homogenization. This suspension was used to inoculate 450 mL of sterile DI water for each replicate test of the cap. All tests were performed in triplicate with untreated controls for comparison.

**Efficacy Testing**

The 450-mL contaminated test water was placed into the container and capped with the CrazyCap Pro then treated with UV on Pro Mode (3 minutes). Following each replicate test, a small aliquot of water was removed and serially diluted. Each dilution was plated onto AC Petrifilm plates and incubated at 35°C for 24 hours. All tests were performed in triplicate. After incubation any recovered colonies were counted.

**Experimental Results:**

**Table 1:** Quantitative counts for *E. coli* contaminated water treated with the CrazyCap Pro.

<b>Test Treatments</b> Pro Mode Treatment time = 3 minutes	<b><i>E. coli</i></b> <b>CFU/mL</b>	<b>LOG</b>	<b>LOG</b> <b>Reduction</b>	<b>% Kill</b>
Untreated Replicate 1	7,000,000	6.85		
Untreated Replicate 2	5,500,000	6.74		
Untreated Replicate 3	5,300,000	6.72		
Pro Mode Treatment, Replicate 1	<1	0.00	> 6.85	>99.99999
Pro Mode Treatment, Replicate 2	<1	0.00	> 6.74	>99.99998
Pro Mode Treatment, Replicate 3	<1	0.00	> 6.72	>99.99998
<b>Average kill rate in Pro Mode</b>				<b>&gt;99.99998</b>



**Conclusions:**

The CrazyCap Pro significantly decreased (>99.99998%) the level of the test bacteria in the contaminated water after UV treatment on the Pro mode (3 minutes) compared to the starting untreated bacterial populations.

**Signatures:**

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